

REMARKS

Claims 1-36 and 38-68 are pending in the above-captioned patent application after this amendment. Claim 12 was found to contain patentable subject matter. Claims 1-11 and 13-52 have been rejected. The Applicants respectfully disagree with the rejections. However, the applicants have amended claims 1, 22, and 36, cancelled claim 37 without prejudice and added new claims 53-68 in order to expedite prosecution of the present application.

Support for the amendments to claims 1, 22, and 36 and new claims 53-68 can be found in the original claims, in the specification on pages 19-21, and in Figures 1-6. No new matter has been added by this amendment. Further, the amendments to claims 1, 22, and 36 are not believed to be narrowing amendments. More specifically, the amendments to claims 1, 22, and 36 add language that is inherent from each of the respective claims as originally drafted. Reconsideration of the pending application is respectfully requested in view of the arguments set forth below.

Interview Summary

On March 12, 2004, the undersigned attorney for the Applicants conducted a telephonic interview with the Examiner, Lam S. Nguyen. During the interview, the pending independent claims were discussed. However, no agreement was reached. The Applicants want to thank the Examiner for his time and assistance during the interview.

Rejections Under 35 U.S.C. § 102(b)

Claims 1-4, 6, 8-11, 13, 16, 18-22, 25-27, 30, 32-37, 40-44, 47 and 49-52

Claims 1-4, 6, 8-11, 13, 16, 18-22, 25-27, 30, 32-37, 40-44, 47 and 49-52 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sakai (U.S. Patent No. 5,214,290). The Applicants respectfully submit that the rejection of claims 1-4, 6, 8-11, 13, 16, 18-22, 25-27, 30, 32-36, 40-44, 47 and 49-52 is unsupported by the art and should be withdrawn.

The Examiner contends that "Sakai discloses a stage assembly that moves a device along a Y axis (FIG. 1), the stage assembly comprising: a device stage that retains the device (FIG. 1, element 13-14); a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the Y axis (FIG. 1: a corresponding mover that moves element 16 in Y direction); and a first follower frame that

supports the device stage along a Z axis (Referring to claim 22), the first follower frame moving substantially concurrently with the movement of the device stage along the Y axis (FIG. 1: the follower frame 16, while moving in the Y direction on the wheels 17, carries the device stage 14 moving in the Y direction too)."

The Examiner further asserts that Sakai discloses the various elements that are present in dependent claims 2-4, 6, 8-11, 13, 16, 18-21, 25-27, 30, 32-35, 37, 40-44, 47 and 49-52.

The Applicants provide that Sakai is directed to an electron beam lithography apparatus comprising a workpiece stage 2 that supports a workpiece 13, the workpiece stage 2 including an X table 15 and a Y table 14, which are supported by a base 16. The workpiece 13 is moved in the X-axis direction by an X-axis driver mechanism 19 that moves both the X table 15 and the Y table 14 in the X-axis direction along cross roller guides 26X. The workpiece 13 is moved in the Y-axis direction by a Y-axis driver mechanism 20 that moves only the Y table 14 in the Y-axis direction along cross roller guides 26Y. Importantly, the X-axis driver mechanism 19 is fixed to the base 16, and the base 16 and the Y-axis driver mechanism 20 are both fixed to a side wall 27 of a vacuum workpiece chamber 5. Accordingly, "the base 16 and the driver mechanisms 19, 20 are all mounted on one side wall 27 of the vacuum workpiece chamber 5". Further, "rollers 17 mounted on the base 16 are arranged to roll on withdrawal guide rails 18 fixed to the bottom plate of the vacuum workpiece chamber 5, so that the entire workpiece stage 2 can be taken out from the workpiece chamber 5 together with the driver mechanisms 19 and 20" for maintenance work. (Sakai column 1, lines 18-24, column 2, line 58 through column 3, line 18, column 3, lines 45-52, and in Figures 1 and 2).

However, Sakai does not disclose a stage assembly comprising a device stage and a first follower frame that moves substantially concurrently with the movement of the device stage. In Sakai, the base 16 is fixedly mounted on the side wall 27 of the vacuum workpiece chamber 5, so it is not possible that while the workpiece stage 2 is being moved along the Y-axis by the Y-axis driver mechanism 20, that the base 16 moves substantially concurrently with the movement of the workpiece stage 2 (i.e. the Y table 14) along the Y-axis. Further, Sakai does not disclose a first follower mover that moves the first follower frame along the Y-axis substantially concurrently with the movement of the device stage.

Sakai does disclose rollers 17 that are mounted on the base 16 and are arranged to roll on withdrawal guide rails 18. However, these rollers 17 are used only to remove the workpiece stage 2 and the driver mechanisms 19, 20 entirely from the workpiece chamber 5 and not as a means for the base 16 to substantially follow the movement of the workpiece stage 2 along the Y-axis while the driver mechanisms 19, 20 are moving the workpiece stage 2 along the X-axis and the Y-axis.

In contrast to the cited reference, claim 1 is directed to a "stage assembly ... comprising: a device stage that retains the device; a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the Y axis; and a first follower frame that supports the device stage, the first follower frame being moved substantially concurrently with and to substantially follow the movement of the device stage along the Y axis." Because Sakai does not disclose all of the elements of claim 1, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 2-4, 6, 8-11, 13, 16 and 18-21 depend either directly or indirectly from claim 1, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Further, in contrast to the cited reference, claim 22 is directed to a "stage assembly ... comprising: a device stage that retains the device; a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the X axis and along the Y axis; a first follower frame that supports the device stage along a Z axis; and a first follower mover that moves the first follower frame along the Y axis substantially concurrently with the movement of the device stage by the stage mover assembly along the Y axis." Because Sakai does not disclose all of the elements of claim 22, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 25-27, 30 and 32-35 depend either directly or indirectly from claim 22, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Additionally, in contrast to the cited reference, claim 36 is directed to a "method ... comprising the steps of: providing a device stage that retains the device; connecting a stage mover assembly to the device stage, the stage mover assembly moving the device stage along the Y axis; supporting the device stage along a Z axis with a first

follower frame; and connecting a first follower mover to the first follower frame, the first follower mover moving the first follower frame substantially concurrently with the movement of the device stage by the stage mover assembly along the Y axis.” Because Sakai does not disclose all of the elements of claim 36, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 40-44, 47 and 49-52 depend either directly or indirectly from claim 36, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Claims 1, 14, 15, 22, 28, 29, 36, 45 and 46

Claims 1, 14, 15, 22, 28, 29, 36, 45 and 46 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sloyan (U.S. Patent No. 4,120,210). The Applicants respectfully traverse the rejection of claims 1, 14, 15, 22, 28, 29, 36, 45 and 46 and respectfully submit that claims 1, 14, 15, 22, 28, 29, 36, 45 and 46 are patentable over the cited reference.

The Examiner contends that “Sloyan discloses a stage assembly that moves a device along a Y axis (FIG. 1), the stage assembly comprising: a device stage that retains the device (FIG. 1, elements 10 and 15); a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the Y axis (FIG. 1: element 14 and 16); and a first follower frame that supports the device stage along a Z, the first follower frame moving substantially concurrently with the movement of the device stage along the Y axis (FIG. 1: while element 17 is moving, it carries the device stage 15 moving in the same direction).”

The Examiner further asserts that Sloyan discloses the various elements that are present in dependent claims 14, 15, 28, 29, 45 and 46.

The Applicants provide that Sloyan is directed to a motor mount for an electric motor 1 comprising a carriage 10 that is slidable along parallel cylindrical rod-like rails 12 in the forward and rearward directions under manual operation of a crank 14 that rotates a long screw 16 located between and parallel to the rails 12. The carriage 10 includes a plurality of cross-sectionally square and parallel glider tubes 11 and a cross-sectionally square housing tube 17 that are secured to the underside of a carriage top, which may be a pair of cross-member plates 15, 15 (see Figure 1) or a single plate 15a (see Figure 5). “All of said tubes are welded to the plates, or otherwise secured thereto, so as to unify them as major constituents of the carriage.” The rails 12 are within and make sliding

contact with the inner walls of glider tubes 11, and the screw 16 extends through the housing tube 17. Importantly, Sloyan states that “(i)t is essential that the carriage body shall not only be a consolidated, rigid unit, but that the gliders shall likewise be accurately unified therewith to provide a freely slidable assembly”. (Sloyan column 1, lines 50-55, column 3, line 48 through column 4, line 18, and in Figures 1, 2 and 5).

However, Sloyan does not disclose a stage assembly comprising a device stage and a first follower frame that moves substantially concurrently with the movement of the device stage. In Sloyan, the glider tubes 11 and the housing tube 17 are welded, or otherwise secured, to the carriage plates 15 to form one unified carriage 10 on which a device can be mounted. Accordingly, neither the glider tubes 11 nor the housing tube 17 can realistically be considered a follower frame that moves substantially concurrently with the movement of the carriage 10, because they are necessarily and integrally welded to the carriage plates 15 as part of the carriage 10 and do not follow the movement of the carrier plates 15. Additionally, Sloyan does not disclose a stage mover assembly that moves the device stage along the X-axis and along the Y-axis, and a separate first follower mover that moves the first follower frame along the Y-axis substantially concurrently with the movement of the device stage. Sloyan provides a single manual crank 14 to move the carriage 10, including the carriage plates 15, the glider tubes 11 and the housing tube 17, in a single axial direction.

In contrast to the cited reference, claim 1 is directed to a “stage assembly ... comprising: a device stage that retains the device; a stage mover assembly connected to the device stage, the stage mover assembly moving the device stage along the Y axis; and a first follower frame that supports the device stage, the first follower frame being moved substantially concurrently with and to substantially follow the movement of the device stage along the Y axis.” Because Sloyan does not disclose all of the elements of claim 1, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 14 and 15 depend either directly or indirectly from claim 1, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Further, in contrast to the cited reference, claim 22 is directed to a “stage assembly ... comprising: a device stage that retains the device; a stage mover assembly connected to the device stage, the stage mover assembly moving the device

stage along the X axis and along the Y axis; a first follower frame that supports the device stage along a Z axis; and a first follower mover that moves the first follower frame along the Y axis substantially concurrently with the movement of the device stage by the stage mover assembly along the Y axis.” Because Sloyan does not disclose all of the elements of claim 22, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 28 and 29 depend either directly or indirectly from claim 22, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Additionally, in contrast to the cited reference, claim 36 is directed to a “method ... comprising the steps of: providing a device stage that retains the device; connecting a stage mover assembly to the device stage, the stage mover assembly moving the device stage along the Y axis; supporting the device stage along a Z axis with a first follower frame; and connecting a first follower mover to the first follower frame, the first follower mover moving the first follower frame substantially concurrently with the movement of the device stage by the stage mover assembly along the Y axis.” Because Sloyan does not disclose all of the elements of claim 36, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 45 and 46 depend either directly or indirectly from claim 36, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 5, 7, 17, 23, 24, 31, 38, 39 and 48 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Sakai (U.S. Patent No. 5,214,290) in view of Sugishima et al. (U.S. Patent No. 4,684,315).

As provided above, the rejection of claims 1, 22 and 36 is unsupported by the art. Therefore, claims 1, 22 and 36 negate a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 5, 7 and 17, which depend either directly or indirectly from claim 1, are patentably distinguishable over the cited combination of references. Further, claims 23, 24 and 31, which depend either directly or indirectly from claim 22, are patentably distinguishable over the cited combination of references. Additionally, claims 38, 39 and 48, which depend either directly or indirectly from claim 36, are patentably distinguishable over the cited combination of references.

Allowable Subject Matter

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 12 depends indirectly from claim 1. As provided above, claim 1 is patentable. Accordingly, the Applicants respectfully submit that claim 12 is also patentable, and that the basis of the objection is overcome, having shown the allowability of base claim 1 above.

New Claims

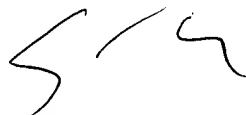
New claims 53-68 have been added by this amendment. These claims are considered to be patentable in view of the cited references.

CONCLUSION

In conclusion, the Applicants respectfully assert that claims 1-36 and 38-68 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-456-1951 for any reason that would advance the instant application to issue.

Dated this the 26th day of April, 2004.

Respectfully submitted,



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